What is claimed is:

1.      An apparatus for emulating a layer-2 service over at least one network, the apparatus comprising:

a signal transmission path;

two provider edge devices located at opposite ends of said signal transmission path; and

a provider device located along said signal transmission path such that said provider device divides said signal transmission path into segments,

wherein one of said provider edge devices includes code for adding a demultiplexing header onto data units prior to said data units being transmitted along said signal transmission path.

2.      An apparatus as claimed in claim 1 wherein said signal transmission path includes at least one of the following: an LSP, an IP tunnel, a GRE tunnel and an IPSec tunnel.

3.      An apparatus as claimed in claim 1 wherein said one of said provider edge devices further includes code for encapsulating said data units prior to said data units being transmitted along said signal transmission path.

4.      An apparatus as claimed in claim 1 wherein said provider edge devices are directly connected to client edge devices that are devices in geographically separated VPLS segments.

5.      An apparatus as claimed in claim 3 wherein signalling associated with one of said segments is LDP signalling, and signalling associated with another of said segments is BGP signalling.

6.      An apparatus as claimed in claim 3 wherein one of said segments includes a layer-2 transport technology and another of said segments includes a layer-3 transport technology.

7.      An apparatus as claimed in claim 4 wherein said one of said provider edge devices further includes code for adding an MPLS label onto said data units prior to said data units being transmitted along said signal transmission path.

8.      A method for emulating a layer-2 service over at least one network, the method comprising the steps of:

receiving a data unit at a first provider edge device;

adding a demultiplexing header onto said data unit;

transporting said data unit along a signal transmission path, said signal transmission path being divided into at least two segments by at least one provider device;

receiving a data unit at a second provider edge device;

demultiplexing said data unit; and

transmitting said data unit out of said second provider edge device,

wherein there is a service emulation over at least one of said at least two segments.

9.      A method as claimed in claim 8 wherein said signal transmission path includes at least one of the following: an LSP, an IP tunnel, a GRE tunnel and an IPSec tunnel.

10.     A method as claimed in claim 9 further comprising the step of transmitting a data unit out of a local area network before the step of receiving a data unit at a first provider edge device.

11.     A method as claimed in claim 10 further comprising the step of receiving a data unit at another local area network.

12.     A method as claimed in claim 9 wherein one of said at least two segments is within an MPLS network.

13. A method as claimed in claim 12 wherein said first provider edge device is an ingress router, and said provider device and said first provider edge device are MPLS enabled routers.

14. A method as claimed in claim 13 further comprising the step of adding an MPLS label onto said data unit before the step of transporting said data unit along a signal transmission path.

15. A method as claimed in claim 14 wherein said one of said at least two segments includes a layer-3 transport technology and another of said at least two segments includes a layer-2 transport technology.

16. A network system for emulating a layer-2 service, comprising:
   a signal transmission path having two ends;
   a first provider edge device including means for adding a demultiplexing header onto data units prior to said data units being transmitted along said signal transmission path, said first provider edge device being located at a first end of said signal transmission path;
   a second provider edge device being located at the opposite end of said signal transmission path;
   means for automatically discovering said signal transmission path; and
   a node located along said signal transmission path such that said node divides said signal transmission path into segments,
   wherein local switching occurs at said node.

17. A network system as claimed in claim 16 wherein said node include a hairpin connection.

18. A network system as claimed in claim 17 wherein one of said segments includes a layer-2 transport technology.

19.    A network system as claimed in claim 18 wherein said network system connects a first and a second local area network, and said data units are transmitted from said first local area network to said second local area network.

20.    A network system as claimed in claim 19 wherein said network system supports at least two of the following: Martini, layer-2 tunnelling protocol and MPLS.